HIGHLAND COUNTY, VIRGINIA

WIRELINE E-911 ASSESSMENT

PREPARED FOR:

VIRGINIA DEPARTMENT OF TECHNOLOGY PLANNING
PUBLIC SAFETY COMMUNICATION DIVISION

PREPARED BY:

THE ATLANTIC GROUP
OF COMPANIES

10197 MAPLE LEAF COURT
ASHLAND, VA 23005
(804) 550-7490

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Scope of Work

The purpose of this study is to determine the system requirements and cost to implement wireline E-911 in Highland County. The following tasks were undertaken pursuant to this objective:

1. Determine the current hardware, software, and networks being used in the PSAP.

2. Develop a network design for a wireline E-911 system to include customer premise equipment (CPE), automatic location identification (ALI) database services, and other hardware and software requirements.

3. Determine the initial, non-recurring and life cycle costs for the wireline E-911 system with special consideration given to utilization of existing infrastructure.

4. Coordinate with the local exchange carriers serving the County to ensure that monthly recurring costs are minimized.

5. Determine the level of additional funding support that could be provided by the Wireless E-911 Fund should the County decide to implement wireless E-911 as well as wireline E-911.

Introduction

The goal of enhanced 9-1-1 (E-911) is to reduce response time for an emergency call. Basic 9-1-1, the predecessor to E-911, simplified the call process by only requiring the dialer to dial three digits "9-1-1". The system would recognize this as an emergency call and route the call to the public safety answering point (PSAP) responsible for dispatching the call. When a basic 9-1-1 call is received with basic name, number and address, it is the responsibility of the call-taker to determine from the caller the location of the call and who to dispatch.

E-911 automates all phases of the emergency call response process by incorporating: simplified emergency call dialing; automatic routing of the call to the proper PSAP; and, automatic location identification (ALI). Dispatch of the responding agency is accelerated because these processes are performed in a matter of seconds. Wireline E-911 service is distinguished from wireless E-911 in that a call is routed based upon a telephone number exchange that identifies the location of the caller. Since it is not possible to locate a wireless call by telephone number, location determination must be performed by other means. Because of the special challenges associated with implementing wireless E-911, most localities will implement wireline E-911 prior to implementation of wireless E-911.

All localities in Virginia, with the exception of those meeting the criteria established in § 56-484.16D of the Code of Virginia, must implement wireline E-911 by July 1, 2003. § 56-484.16D reads as follows:

> *The provisions of this section shall not apply to any county, city, or town in which (i) fifty percent or more of the locality's geographic area is unable to receive wireless telephone service; (ii) no taxes are imposed for E-911 services pursuant to §58.1-3813.1; and (iii) the Board has designated a specific PSAP or the Virginia State Police to answer wireless 911 and wireless E-911 calls originating in the particular locality, and the designated entity agrees to answer wireless 911 and wireless E-911 calls.*

Under the provisions of § 56-484.16D, Highland County is <u>not</u> mandated to implement wireline E-911 service. The County however, in authorizing this study, is committed to the implementation of E-911 service for its citizens to the extent that it is feasible.

Background

County Demographics

Highland County has a population of approximately 2,500 that is anticipated to remain stable over the next decade. Comprising approximately 415 square miles in the Appalachian Mountains, the County is bordered to the north and west by the state of West Virginia and to the east and south by Augusta and Bath counties respectively. The County sits in a topographic "bowl" with steep mountains along its borders and beautiful, expansive green valleys in the interior region. The Town of Monterey is the county seat. Cattle and livestock farming along with logging and other small businesses comprise much of the local economy. Maple syrup manufacturing and production contributes significantly to the agricultural business. Tourism in the spring and autumn months contributes significantly to the local economy. Hunting, trout fishing, camping, and hiking are some of the more popular recreational pastimes of residents and visitors. Apparently attracted by the beautiful vista views and small towns and villages, the County has a large percentage of "weekend" or "seasonal" property owners. **Absentee landowners own approximately 40 percent of the land in the County**. Highland County and it's residents embrace the preservation of small town "country" living so that their quality of life can be enjoyed by future generations.

Education

Highland County provides an excellent educational system through a countywide, consolidated public school system. There are three schools (elementary, middle, and high school) in the County, all located in close proximity to Monterey. **School aged children make up approximately one-third of the total resident population of the County.** As with most counties in Virginia, the public education funding represents the largest portion of the County budget.

Communications (Current)

Wireline – Loop Exchange Carriers

Three (3) telephone service providers serve the County**:**

Highland Telephone Cooperative (HTC)
MGW Telephone Company (MGW)
TDS Telecom (TDS).

The following table summarizes significant attributes of each service provider:

Service Provider	Access Lines/ Subscribers	Switching	Point of Contact	Phone Number
Highland Telephone Cooperative	1,400/1,100	DCO/Siemens	Elmer E. Halterman	(540) 925-2255
MGW Telephone Co.	400/375	Nortel	L. Ronald Smith	(540) 468-2134
TDS Telecom	16/12	AT&T 5ESS	Stephen M. Shank	(540) 864-7427

Telephone companies and cooperatives are referred to as Loop Exchange Carriers or "LECs". The three LECs operating in the County are well run, managed, and operated. HTC and MGW are owned and operated by businesspersons residing in the County. United States Cellular of Chicago, Illinois owns TDS.

All three-telephone companies have defined customer and geographic boundaries, which are served over a copper and fiber optic feeder and distribution network. All three networks on which the local LECs are operating are switched with new and upgraded digital switching. All three LECs provide custom calling features with Plain Old Telephone Service (POTS) and T-1 speeds for transmission bandwidth. Additionally, all three LECs offer Internet services and data connections.

The majority of the cable distribution network is buried, and well monitored and maintained. Service interruptions are infrequent and are addressed immediately.

All three LECs have worked together to provide a "translation" solution for the public and the County's Public Safety Network.

All wireline dialed 9-1-1 calls originating in the County are translated to a seven-digit dial at the host switch then routed to the Public Safety Answering Point (PSAP) in Monterey.

Wireless - Providers

Green Bank Overlay
Highland County lies within what is known as the "Quiet Zone" established to prevent radio interference with the radio telescope located in Green Bank, West Virginia, approximately 20 miles west of the County. The radio telescope works on the principle of reflection. Radio signals are shot into space and when they hit an object such as a planet, star, asteroid, etc., they are reflected back to the telescope and translated to an image for study and research. This facility is owned and operated by several agencies of the United States government. The transmission and/or reception of any wireless signal must be approved by the Chief Engineer of the Green Bank facility under the authority of Federal law.
Wireless service providers must conform to the established rules concerning the Green Bank facility. Frequency usage is and will continue to be an issue for wireless networks.

Verizon Wireless
Verizon Wireless operates an analog commercial cellular wireless facility west of the Town of Monterey, located on Monterey Mountain (See Exhibit #1). This facility consists of a self- supportive lattice tower located at latitude N 38º 25' 41.7" and longitude W 79º 35' 48.2". This facility consists of a 120-foot tower, communications hut, and generator. Cellular coverage provided by this facility is over approximately 30-35 percent of the county (See Exhibit #2).

Cellular One
Cellular One operates an analog commercial wireless facility adjacent to the Verizon facility west of the Town of Monterey, located on Monterey Mountain (See Exhibit #1). This facility consists of a guyed lattice tower located at latitude: N 38º 25' 39.4" and longitude: W 79º 35' 51.4". This facility consists of an 80'-foot tower, communications hut, and generator. This facility covers approximately 30-35 percent of the county (See Exhibit #3).

Wireless 9-1-1 calls originating in the County are routed to the State Police for local dispatching. There are no other known points of presence (POP) for other licensed wireless carriers in the County.

Description of PSAP

The Public Safety Answer Point (PSAP) is located on Main Street in the Town of Monterey. The PSAP is co-located within the Sheriff's Office, which is adjacent to the Courthouse and Administration building in the Courthouse square (Exhibit #4). The PSAP is located in a historic brick structure that is over 100 years old. The dispatch center portion of the building is approximately 15 feet by 18 feet or 270 square feet. (A floor plan and photos are shown in Exhibits #5 and#6 respectively.) This facility also has a small jail for the processing and holding of persons awaiting transportation to the Courthouse or regional jail.

The PSAP has only one (1) dispatch position. The PSAP receives and dispatches law enforcement, fire, and rescue calls for the entire County along with mutual aid calls for surrounding jurisdictions. Administrative duties including a receptionist for the Sheriff's Department are handled in the PSAP.

Public Safety Agencies

Law Enforcement

The Sheriff's Department is responsible for local law enforcement. The Department is lead by Sheriff Herbert R. Lightner. The Sheriff's Office is located adjacent to the Courthouse on Main Street in the Town of Monterey. Six (6) deputies staff the Sheriff's Department. Sheriff Lightner has led the Department since January 1, 1988.

Fire Departments:

Three (3) fire departments are operated in the County:

- **Highland County Volunteer Fire Department - Chief Elmer Waybright**
- **McDowell Volunteer Fire Department - Chief Doug Siron**
- **Bolar Volunteer Fire Department - Chief John Wright**

Emergency Medical Services

One (1) emergency medical service (EMS) unit is operated in the County:

- **Highland County Volunteer Rescue Squad - Captain Ronald Wimer**

All Public Safety units have defined service boundaries within the County.

Dispatchers

Five (5) full-time and one (1) part-time trained, professional dispatchers staff the Monterey PSAP. Each dispatcher is trained to Commonwealth of Virginia standards and is highly motivated. **There is only one (1) dispatch position vacancy at this time.**

Current PSAP Systems

These systems currently reside with in the Monterey PSAP.

Customer Premises Equipment

The current system is an ExecuTech XE Key system from COMDIAL. This system was purchased and installed in 1997. Currently there are ten (10) sets hosted on this system. The current telephony arrangement is two (2) POTS lines for 9-1-1 calls from the host central office in Monterey by Highland Telephone Cooperative. **This CPE will not support basic or enhanced 9-1-1. It must be upgraded to the COMDIAL FXII model.**

Public Safety Radio System

Highland County operates a **Kenwood 830, two (2)-site, UHF trunked conventional system**. The repeater sites are located at Sounding Knob and Riven Rock. A fiber trunk links the host and remote sites. This system is for dispatch and communications with law enforcement, fire, and rescue. This system meets Commonwealth of Virginia, Federal Communication Commission, and APCO guidelines for a public safety radio system.

Recordation System

The County does not currently record incoming calls to a Dictaphone type-recording device.

Mapping System

The County does not have a mapping system.

Computer Aided Dispatch (CAD)

The County does not have a CAD system.

Master Street Addressing Guide (MSAG)

The County has not assigned street names or structure numbers. State route numbers and rural route delivery addresses are the only means of locating structures. As a result of efforts on the part of a private citizen, a database in spreadsheet form was developed a few years ago that was set-up with National Emergency Number Association (NENA) data fields and populated with relevant data for citizens in the County. This would be an excellent "jump-off point" for the development of an MSAG. **However, by NENA standards, the County does not have a Master Street Address Guide (MSAG). ATC recommends that the maintenance of the MSAG be "outsourced" to a Telco or development company.**

Stand-by Power

The County has a 4-kilowatt generator on an automatic transfer switch (ATS) that is well maintained. This generator has dedicated breakers in the House Service panel that support the telephony Customer Premises Equipment and the Public Safety Radio System. **An upgrade to a 15 Kw generator and appropriate automatic transfer switch would be needed to service additional equipment properly**.

Virginia Criminal Information Network (VCIN)

The County is connected to the VCIN.

State Information Radio Systems (SIRS)

The County has transmit and receive capability to the State Police over the SIRS Radio Network.

Call Volume

The following table summarizes calls received in the Monterey PSAP:

Call Type	1996	1997	1998	1999	2000	2001	6-Yr. Avg.
Rescue	229	210	191	234	199	184	208
Fire	77	62	60	134	64	61	76
Assistance	6,470	6,497	9,196	9,131	6,616	5,341	7,209
Dispatch Deputy	2,010	2,777	2,656	3,224	2,743	1,688	2,516
Dispatch Other	428	495	722	770	688	595	616

The County manually accounts for all incoming and dispatch calls.

Telco System Architecture and Routing (Current "dialed 9-1-1" System)

Highland Telephone Cooperative

HTC operates a Central Office (CO) in Monterey. Three (3) remote line switches (RLS) located in Blue Grass, Mill Gap, and Mustoe are linked to the Monterey CO via digital, fiber, T-1 connections. A 25-pair copper cable connects the Monterey CO to the PSAP in Monterey. For HTC subscribers, a dialed 9-1-1 call originating in the HTC service area is translated to a seven digit number that will either be routed directly to the CO or be routed from one of the three (3) RLS to the CO. From the Monterey CO the call is routed to the PSAP via two (2) POTS lines.

MGW Telephone Company

MGW operates a Central Office in Deerfield in Augusta County. The Deerfield CO is linked to the Monterey CO via digital, fiber, T-1 connections. For MGW subscribers, a 9-1-1 call originating in the MGW service area will be translated to a seven (7)-digit dial then routed directly to the Monterey CO. From the Monterey CO the call is routed to the PSAP. The MGW switch in the Deerfield CO is not capable of providing name recognition for incoming calls at this time.

TDS Telephone Company

TDS operates a Central Office in Warm Springs in Bath County. The Warm Springs CO is linked to the Monterey CO via digital, fiber, T-1 connections. For TDS subscribers, a 9-1-1 call originating in the County will be routed directly to the Warm Springs CO, translated to seven- (7) digit dial then sent to the Monterey CO. From the Monterey CO the call is routed to the PSAP via POTS line.

Network Design Options

1. **"Stay as is"**

System Definition: Current residents dial "9-1-1" on their premises phone. Dialed "9-1-1" is translated at the host switch to seven (7) digit dial, routed on a trunk line to Monterey Central Office (CO) operated by HTC, Monterey CO to Highland PSAP via POTS (2 lines). (Exhibit #8)

(X=requirements)

	MSAG	Signage	GIS	Map Soft.	CAD	Telco Svc.	CPE	Comp/Ptr.
Capital								
Operational						X		

Estimated Total Cost:

Capital:**.....$0**

Re-occurring Cost (Current Local Exchange Service)..... $40.00/Month

Life Cycle Cost:**.....*$0***

2. **"Stay as is" + Caller Identification Name and Number with Time and Date**

System Definition: Current residents dial "9-1-1" on their premises phone. Dialed "9-1-1" is translated at the host switch to seven (7) digit dial, routed on a trunk line to the Monterey Central Office (CO) operated by HTC, Monterey CO to Highland PSAP via POTS with Caller Identification of name and originating ten (10) digit number. (Exhibit #9)

Example of Info on Caller ID Box: **Smith, John 08-28-02**
540-243-1234 12:15 PM

Equipment Needed:
a. Caller ID Box

(X=requirements)

	MSAG	Signage	GIS	Map Soft	CAD	Telco Svc	CPE	Comp/Ptr.
Capital							X	
Operational						X		

Estimated Total Cost:
Capital:**.....$20.00 (Cost of Caller ID Box)**
Operational Expense:**.....$15.00/month Caller ID**
$40.00/Month Local Service
Total Monthly Cost.....$65.00/month Local Service
Life Cycle Cost:.....$ 0

3. Enhanced E-9-1-1

NENA and COVA Standards
(GIS Data Base + MSAG + CPE:ANI/ALI+ Mapping)

System Definition: Originating dial "9-1-1" from county to host Central Office to Monterey CO (HTC), to Verizon (Filmore/703 East Grace/Franklin Road) to Network Control Center (New Jersey) and return to Monterey Central Office to Highland PSAP via T-1. (Exhibit # 10)

Equipment Required:

a. Computer/Printer
b. ESRI Software
c. MSAG
d. MSAG Data Base
e. GIS System
f. CAD (Enhanced)
g. CPE
h. Mapping Program
i. Digital Time Clock

(X=requirements)

	MSAG	Signage	GIS	Map Soft	CAD	Telco Svc.	CPE	Comp/Ptr.
Capital	X	X	X	X	X	X	X	X
Operational	X		X			X	X	X

Estimated Total Cost:

Capital/Non-Recurring: **.....$393,625**

(See pages 14 & 15 for details)

***Operational Expense/Recurring/Annual*:.....$ 54,644**

(See page 16 & 17)

Life Cycle Costs:

These costs are defined as expenditures for Capitalized Assets that will require maintenance until the designed life of the Asset is completed or realized.

a. CPE/E-9-1-1 Equipment (25 Years Life Expectancy)
   - Maintenance for 25 years @.....$7,500 per year
b. Generator/UPS Equipment (25 Years Life Expectancy)
   - **Maintained for 25 years @.....$3,600 per year**
c. **MSAG Data Base for Structures & Roads (indeterminate)**
   - **Maintained @.....$8,000 per year**

Total Life Cycle Cost.....$19,100 per annum

Equipment, Hardware & Software Requirements

Telco
The MGW switch in the Deerfield CO is not capable of providing name recognition for incoming calls and will require an upgrade. The HTC and TDS switches are capable of processing E-911 calls. Based upon current and estimated future call volume, additional trunking between the Monterey CO and the PSAP is not required.

Master Street Address Guide
A master street address guide (MSAG) database is required for the operation of E-911. The MSAG relates structures and pay phones to telephone numbers that correspond to physical addresses. The address provides the path for the call. Anytime there is a change in customer information, the database must be updated. Therefore, maintenance of the database should be performed on a routine basis. An MSAG has not been performed for Highland County. In order to be implemented, street names and numbers must be assigned and posted for each address included in the database. This is often a challenging and time-consuming process.

E-911 Equipment
A system controller is needed to process E-911 calls. The system would display automatic number identification (ANI) and automatic location information (ALI) to the call-taker. The system would allow the call taker to process the call for dispatch or transfer the call to another jurisdiction.

Geographic Information System
A geographic information system (GIS) includes the computer hardware, application software, and spatial data to allow the display of geographical information. Typically vector data is stored at each workstation. This provides complete functionality in the event the network is unavailable. Imagery, digital orthophotos, site pictures, scanned floor plans, and other large raster databases are typically stored on a server to minimize disk storage space requirements.

Mapping Software
A display is a software application designed to assist a call-taker in establishing the location of an emergency call. A well-designed mapping system includes a properly developed and maintained GIS, a method for synchronizing the GIS data with the ALI data, and a method for resolving discrepancies in the data when they arise.

Optional Equipment, Hardware & Software

Computer Aided Dispatch System
A computer aided dispatch (CAD) system is not required in order to implement E-911. CAD however will improve the efficiency and accuracy of dispatch functions by automating many of the processes.

System Cost

Capital Outlay (Non-Recurring)

(One Dispatching Position)

Master Street Address Guide (100% FUNDED-WIRE LINE)

Project administration, analytical aero triangulation control and mapping, field verification, address development, address delivery, database compilation and MSAG development, map products. NENA Specification

Estimated Cost……$80,000

Signage (100% FUNDED-WIRE LINE)

Manufacture and installation of street signs: 150 signs @ $125.00/each

Estimated Cost……$18,750

E-911 Equipment (100% FUNDED-WIRE LINE)

Telco Interface/PSAP Equipment (ANI/ALI Retrieval/Controller)

Estimated Cost……$125,000

Position Display: 8 lines Capacity (Minimal)

Estimated Cost……$ 16,000

Customer Premises Equipment (100% FUNDED WIRE LINE)

Includes E-911 Compatible Telephone Set with Extensions. Cabling and termination labor included**:**

Estimated Cost……$15,000

Geographic Information System (100% Funded – Wireless)

One (1) GIS workstation to include hardware, software, installation, and training:

Estimated Cost……$5,000

Mapping Software (100% Funded – Wireless)

One (1) mapping station to include hardware, software, installation, and training:

Estimated Cost……$25,000

Voice Recording System (10.66% Funded - Wireless)

Includes interface with CPE. Digital unit with CD-ROM record base

Estimated Cost……$25,000

DIT … $2,665.00
HIGHLAND … $22,335.00

Telco (100% FUNDED-WIRE LINE)

Premises Wiring/Cabling/Misc

Estimated Cost……$5,000

Telco Switch Upgrades (100% Funded – Wireless)

HTC (Switch Software/Multiplexer cards/Channel Banks).....$15,750
TDS (Channel Termination).....$ 513
MGW (Switch Software/Hardware/Translations).....$ 7,612

Building/Equipment Power Requirements (County Funded – 100%)

Building Modifications for E-9-1-1 equipment.....$10,000

Standby Emergency Generator (15kW)/ATS/Electrical Panel.....$45,000

Estimated Non-Recurring Cost (Capital).....$393,625

Ineligible Non-Recurring Cost (Capital).....$77,335

Telco Switch/Selective Router Upgrade by Wireless Board.....$23,875

Eligible Non-Recurring Cost.....$316,290

Recurring Costs

These costs are defined as a cost that is incurred on a monthly, quarterly, or annual basis to maintain the system, database, or hardware. Costs such as wages, salaries, and benefits for dispatching personnel are not included in this estimate. *These costs would remain the same. The salaries are paid in part by the Compensation Board of the Commonwealth of Virginia.*

Eligible For Funding under Wireless E-9-1-1 Approval @ 10.66%
**(County Funded – 100%)

	Estimated Annual Cost
Telco**	
Tandem Trunks (2-Verizon)	$4,908
Interoffice Trunks (6 total)	
	$4,320-HTC
	$9,780-TDS
	$7,536-MGW
ALI Maintenance	$1,200-Verizon
Telco (Trunk Maintenance)*	$2,000
MSAG **	
Data Base Update	$5,000
Centerline/Address Update	$3,000
E-91-1 Equipment *	
CPE Maintenance (After 1st year)	$7,500
Training *	
Personnel	$1,500
Highland … $1,340	
DIT ……$640	
Utilities **	
Electric	$2,500
Fuel (Generator)	$1,800
Infrastructure**	
Generator	$2,400
UPS/Battery	$1,200
Total Annual Recurring Costs	**$54,644**

Wireless Board Funding for Recurring Costs

Recurring Costs for equipment dedicated to Wireless E-9-1-1

- CPE Maintenance or Replacement……..$7,500
- Training……$160

Total WB Funding……$7,660

Recovery Guidelines

The Wireless E-911 Board considered **two methods** for determining the financial need of each locality. The **first method** utilized the **Composite Index (CI)** to determine the percentage of the allowable costs that the locality must fund. The CI is used elsewhere in state government as an ability to pay indicator for localities, such as for education funding. As an illustration, if a locality has a CI of 0.2345, the locality must fund 23.45% of the allowable cost of the project while the Board will fund 76.55% of the cost.

The **second method** considered by the Board was based on the amount of funding that could be generated by the local E-911 surcharge (§58.1-3813.1). For a locality with 5,000 telephone lines, the amount **funded by the locality** would be calculated by multiplying the telephone line count by $1.50 (a midrange surcharge) by 24 months (the amount of time before the July 1, 2003 deadline). In this case the locality would fund $180,000 while the Wireless E-911 Board would fund the remaining cost of the project.

Since the CI was an established method of determining a locality's ability to pay, the Wireless E-911 Services Board selected it as the preferred method; however, a disadvantage of this method was identified. A few of the localities would not be able to generate their share of the project funding using the local E-911 surcharge. In order to generate their share, one locality would have to charge $6.50 per month per access line over the next 24 months, which significantly exceeds the $3.00 monthly cap established in §58.1-3813.1 of the Code of Virginia.

To address this shortcoming, the Wireless E-911 Board developed the **"Capped Composite"** method of determining a locality's ability to pay. This method caps the locality's share as calculated using the CI at the amount the locality can generate imposing a $1.50 over 24 months. The $1.50 amount is used rather than $3.00 to allow localities to use the surcharge to generate additional revenue for expenditures not covered by this grant, such as the salary of an E-911 Coordinator, and in deference to concerns raised regarding the amount of the E-911 surcharges. This should in no way be construed as a requirement for the locality to implement a surcharge. The local funding share may be generated any way the locality wishes. Localities that feel they have a greater financial need than is addressed by the

"Capped-Composite" method may seek a higher percentage of funding, but must prove to the Wireless E-911 Board the appropriateness of the increase. Simply not wanting or being able to implement a local wireline E-911 surcharge will not be sufficient reason for increased funding.

The Board has determined that the following costs should be considered allowable under the wireline E-911 grant guidelines: project management (a state contract exists for this type of project management); mapping; addressing; street signage; customer premise equipment (PSAP equipment); and network installation costs. Further the Wireless E-911 Board has determined that the following costs be specifically identified as not being eligible for funding under the wireline E-911 grant guidelines: voice logging equipment; computer-aided dispatch systems; buildings and furnishings; and radio systems. **The Wireless E-911 Board will consider any other items on a case-by-case basis.**

To address concerns expressed by localities adversely impacted by the lack of state funding in FY2002 and those proceeding with implementation using local funding only, the Wireless E-911 Board adopted the following policy in April 2001:

> *"It shall be the policy of the Wireless E-911 Services Board to look favorably upon requests for extension of the time requirements specified in Virginia code section 56-484.16, subsections A and B from any county, city or town with demonstrated financial need that has been impacted by a lack of state funding assistance for wireline E-911 implementation. It is the Board's intent to provide funding assistance to localities for wireline E-911 expenses incurred after July 1, 2000."*

Localities requiring an extension of time to implement due to the lack of state funding or for any other reason must submit a written request to the Board on official letterhead. The request must identify why the request is necessary, how the locality has performed in good faith up to this point, what the current status of the project is, and when the project is now scheduled for completion.

At present, Highland County does not charge a 9-1-1 surcharge. Applying the "Capped Composite" method for determining funding, the County is responsible for a maximum of $53,532 ($1.50 surcharge x 24 months x 1,487 subscriber lines). Highland is exempt from the "Capped Composite" method.

The following table summarizes cost responsibilities in order to implement wireline E-911.

Highland is eligible for 100% funding for Wire-line E-911 equipment.

Non-Recurring Cost Analysis

	Cost
Total System Cost	$393,625.00
Eligible Fixed Cost	$316,290.00
Ineligible Fixed Cost	$77,335.00
Capped Composite *	$0.00
Highland County Share	**$77,335.00**
State Share **	**$316,290.00**

* Highland County is exempt from the Capped Composite Method
** State of Virginia shall Fund

Recurring Costs Analysis

Projected Annual Recurring Cost. ……...……$54,644

Projected WB Funding……...…….($7,660)

Projected Annual Recurring Cost to Highland County……..……$46,984

Wireless E-911 Funding

Salary Funding – E-911 Personnel

The Wireless Board has made provision for the funding of salaries and administrative costs to be equal to 10.66% of Wireless to Wire line based calls or $30,000 whichever is greater upon implementation of Phase II as long as Highland County is spending a minimum of $30,000 on salaries and administrative costs.

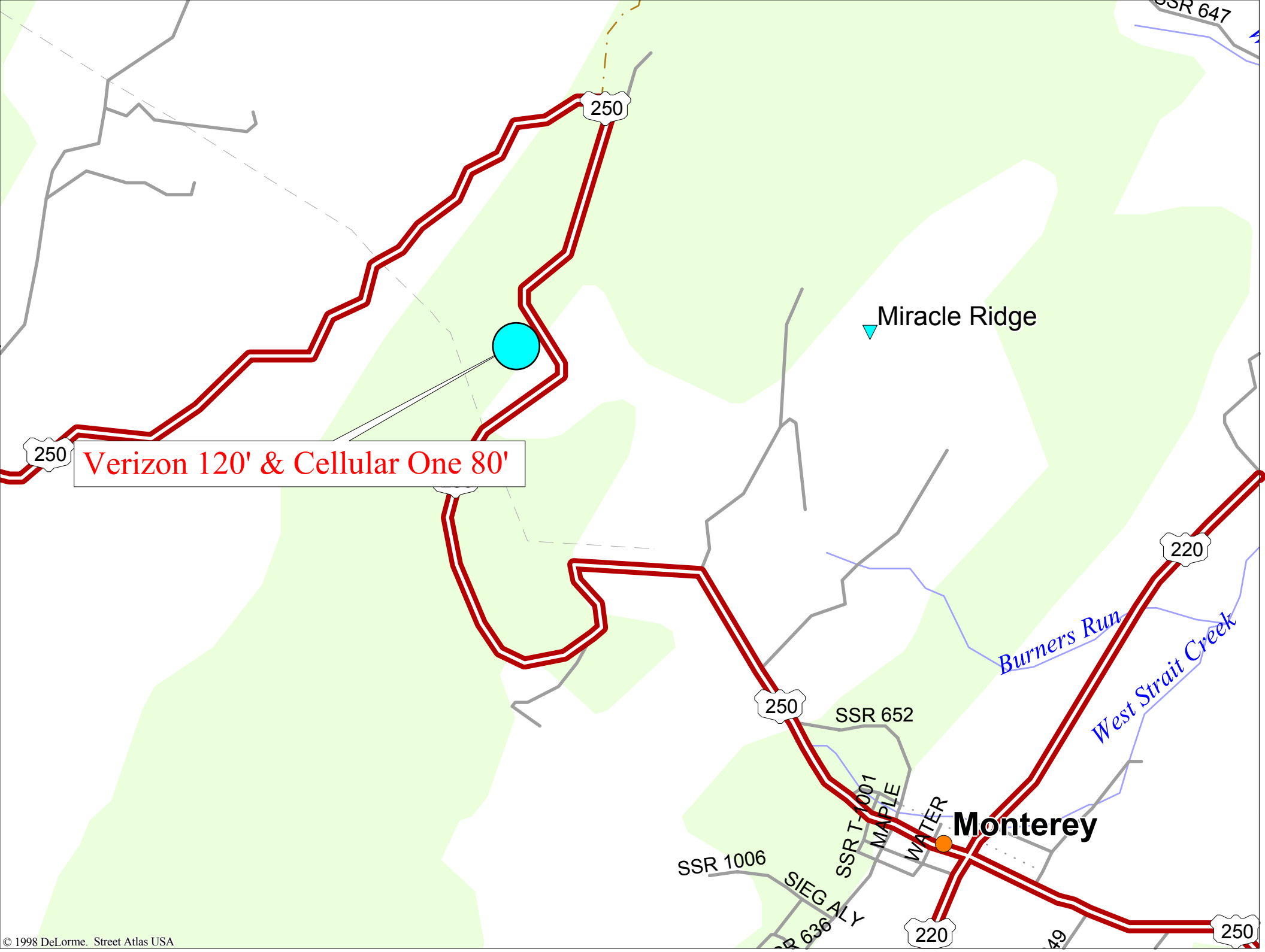
Wireless Board Funding Up To …… $30,000

Recommendation

It is the recommendation of **The Atlantic Group** that the *County of Highland* embraces this project of Wireless E-9-1-1 and begins the implementation process upon approval of funds by the Wireless Board.

George N. Condyles IV
George N. Condyles, IV
President & COO
The Atlantic Group

Exhibits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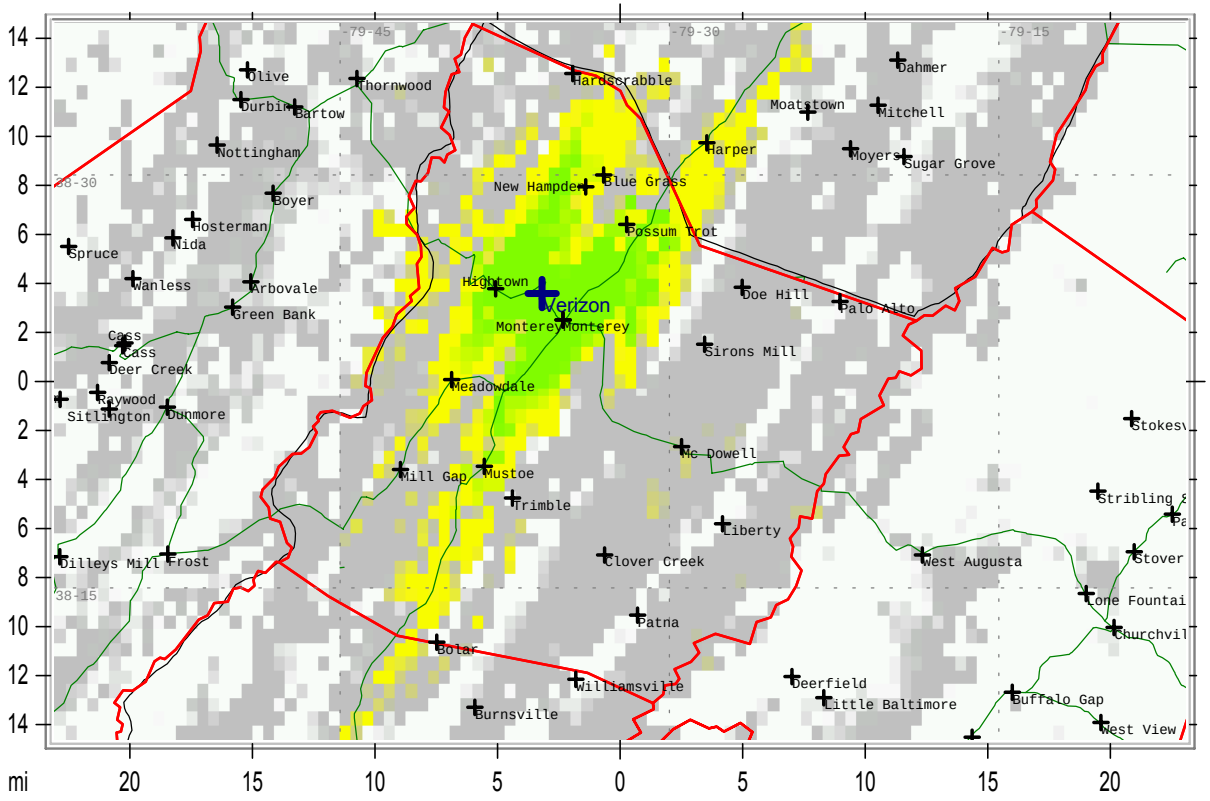
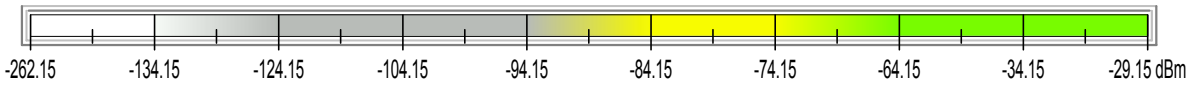
Highland County

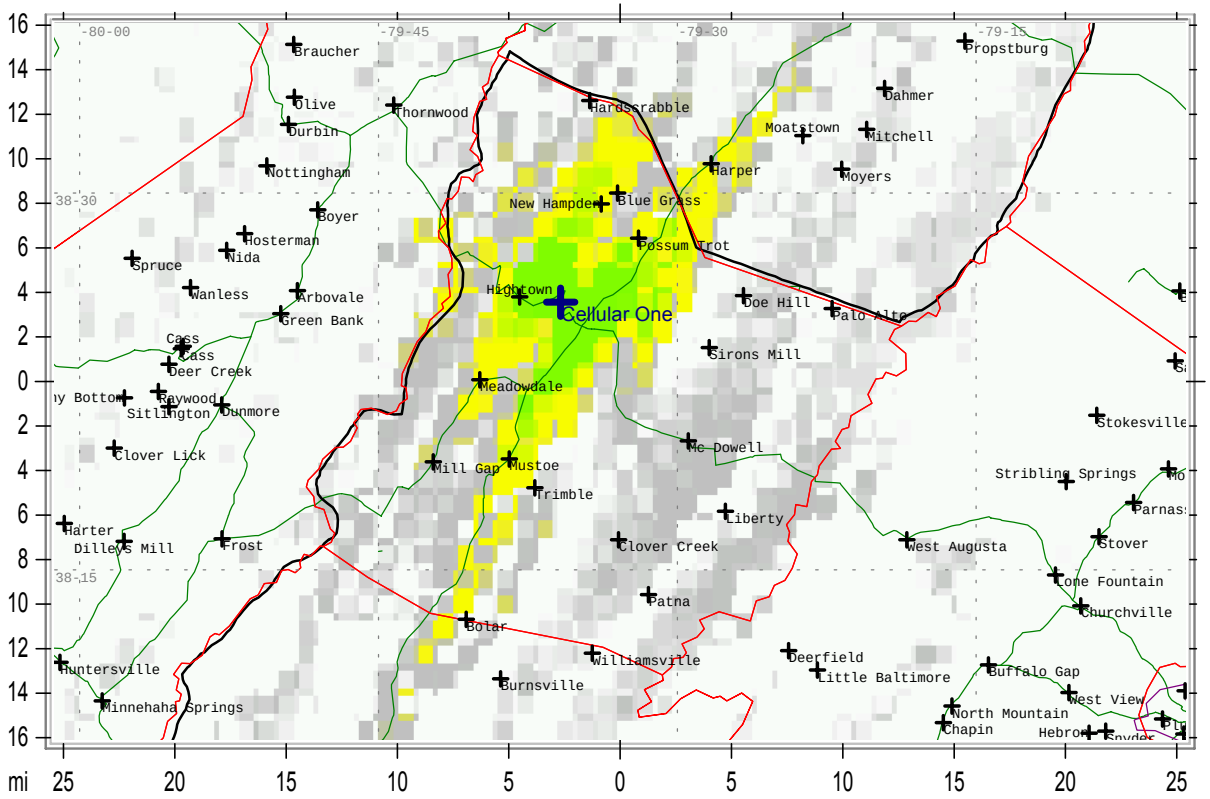


Verizon 120' - Monteray Exhibit 2

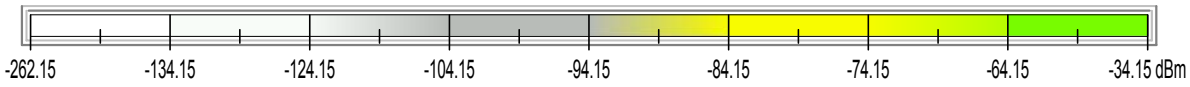


County Borders State Borders Highways Lat/Lon Grid

Highland County



Cellular One 80' - Monteray



County Borders State Borders City Borders Highways Lat/Lon Grid

Map Scale: 1:546335 1" = 8.62 mi V|H Size: 32.16 x 50.79 mi

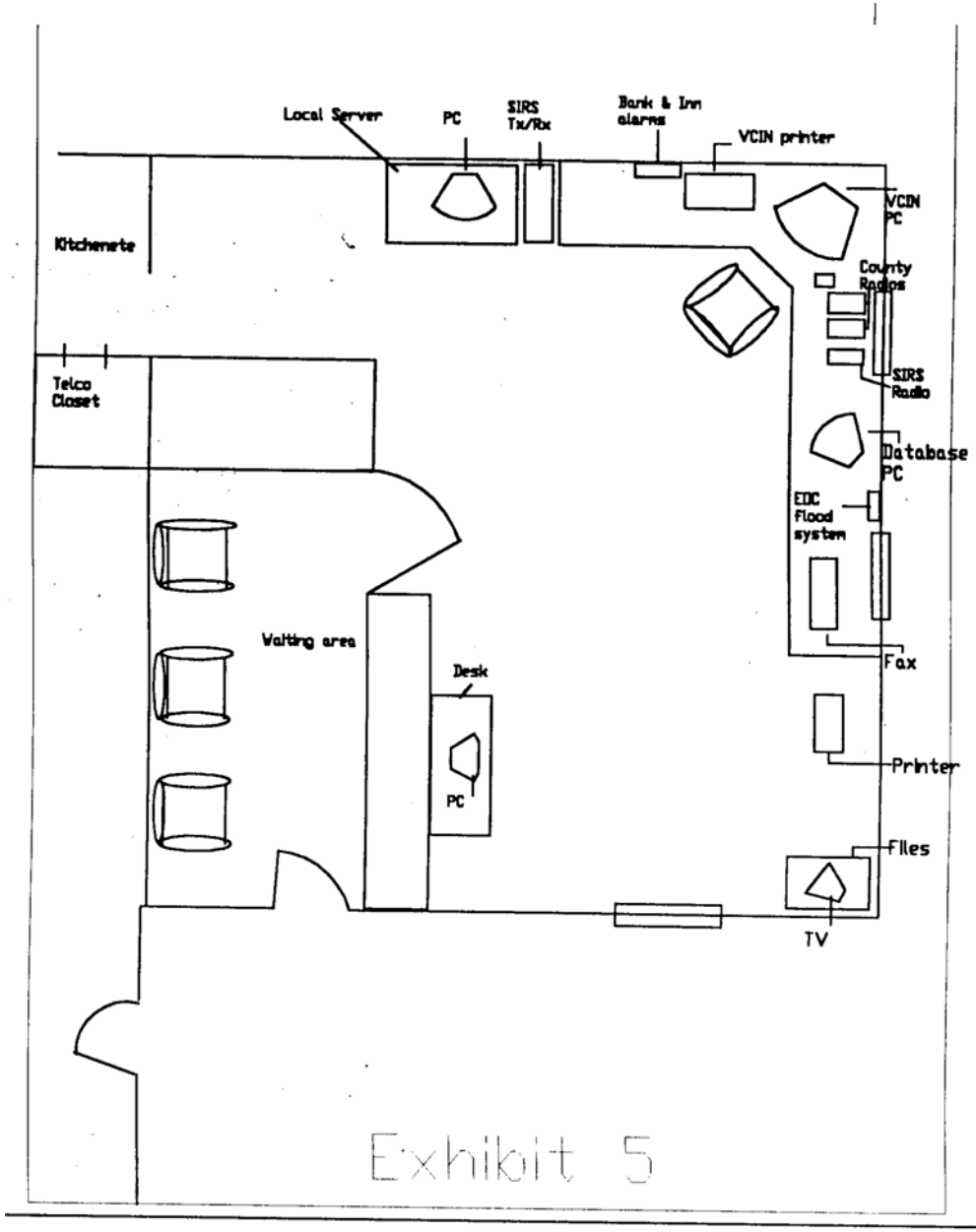

Local Server
PC
SIRS Tx/Rx
Bank & Inn alarms
VCIN printer
VCIN PC
Kitchenette
County Radios
SIRS Radio
Telco Closet
Database PC
EOC Flood system
Fax
Waiting area
Desk
PC
Printer
Files
TV

Exhibit 5

H.R. Lightner, Sheriff
County of Highland
PO Box 485
Monterey, VA 24465
540-468-2210
Fax 540-468-3040

911 Locator Input

Saving Seconds Can Save Lives

Last Name: _____ First Name: _____
_____ _____

Telephone Numbers: _____ _____ _____

Route Number: _____ Street Name: _____

Residence Descriptors: (Please choose one)

_____ Brick
_____ Log
_____ Vinyl Siding
_____ Camping Trailer
_____ Other

_____ Stone
_____ Frame
_____ Mobile Home
_____

_____
_____
_____

Exterior Color: _____

Roof Color: _____

Number of Floors: _____

Occupied:
_____ Full Time
_____ Part Time
If part time provide an
Away address and telephone #

_____
_____
_____
_____

_____ Own
_____ Rental
If rental please provide owner
Contact information:

_____
_____
_____
_____

Caretaker / Key Holder Information:

_____
_____
_____
_____

_____ Single Residence
_____ Multiple Residence
_____ No Residence / Agriculture

_____ Business
_____ Camp

OVER

Alarms: Types: _____, _____

Monitoring: _____ Contacts: _____
Company: _____ _____
_____ _____
_____ _____

Directions: Please provide the best route for fire and rescue form the closest intersection to the nearest tenth of a mile.

_____

_____

_____

_____

_____

_____

_____

_____

_____

Additional Information: Please indicate any entrances requiring 4x4's, difficult crossings, locked gates, names of others living on premises, invalids, locations of bedrooms where individuals (children) may require special assistance, Hazardous materials extreme weather conditions (flooding, drifting snow), medical conditions:

_____

_____

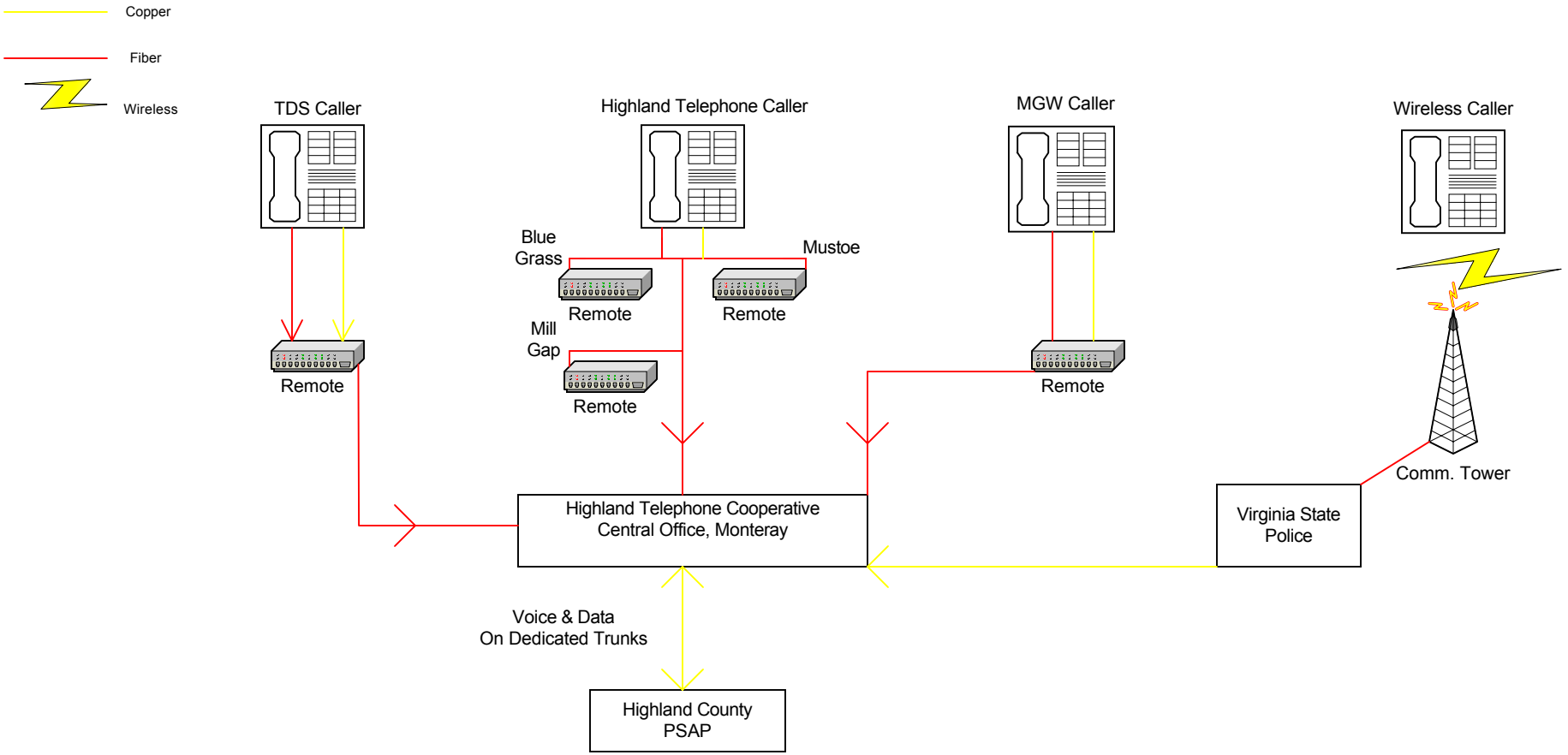
_____

_____

_____

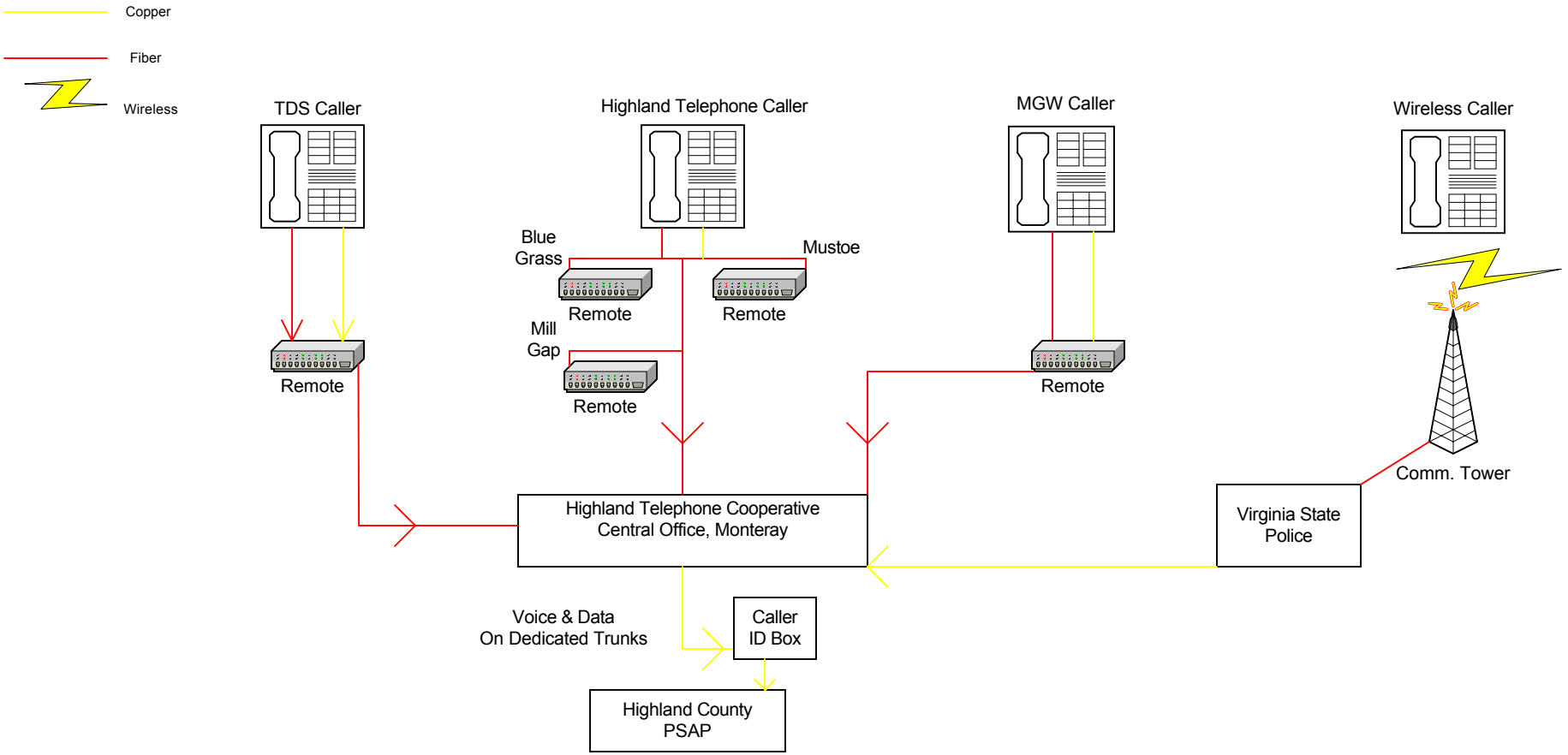
_____

Signed: _____ Date: _____



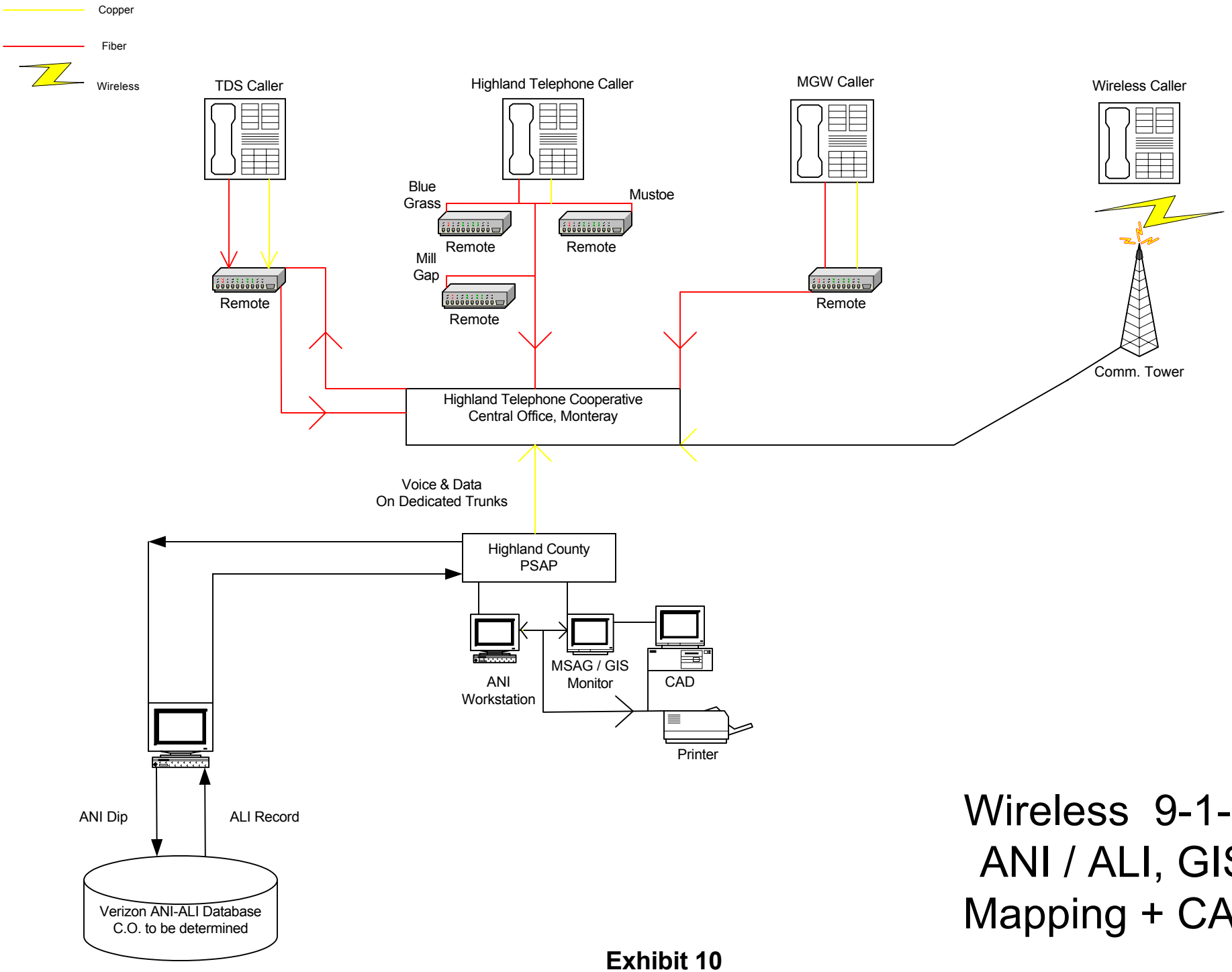
Stay "As - Is"

Exhibit 8



Stay "As - Is" Adding Caller ID with Name, Number, Time & Date

Exhibit 9



Wireless 9-1-1, ANI / ALI, GIS Mapping + CAD

Exhibit 10